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(54) Title: A CENTRAL CONTROL UNIT, A MOBILE TELEPHONE NETWORK AND A DOCKING STATION FOR LOCATING A MOBILE PHONE SUBSCRIBER			
(57) Abstract The invention relates to a central control unit or an assembly of central control units for a mobile telephone network with a plurality of base stations (BS), at least one control unit comprising a base of customer data, said customer data comprising billing records (BR) with billing record information, telephone numbers (TN), various services (SO) and additional data, said mobile telephone network comprising means for detecting localization signals (LS) transmitted from mobile units to the base stations of the mobile telephone network, at least one telephone number (TN) in the base of customer data being addressable directly or indirectly by at least two different localization signals, each localization signal determining at least one item of independent billing record information. According to the invention, it is possible to differentiate between a home zone and a non-home zone, so that a user of a mobile telephone may be offered different rates depending on whether the mobile telephone is used in a home zone or a non-home zone.			

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A central control unit, a mobile telephone network and a docking station for locating a mobile phone subscriber

Field of the art

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The invention relates to a central control unit as stated in the introductory portion of claim 1, a mobile telephone network as stated in the introductory portion of claim 8, and a docking station as stated in the introductory portion of claim 10.

In connection with an ever increasing need for offering telephone subscribers ever more individual and targeted services at competitive prices, it may be noted globally that telephone subscribers increasingly want the freedom that mobile telephone systems can offer, and wired telephone networks are therefore increasingly arranged for data transfer to an ever higher degree.

However, it has been found that several subscribers prefer combining wired network and mobile network services rather than changing in a more goal-oriented manner to mobile network services, which per se can combine the freedom offered by a mobile telephone network and substantially all the services that can be offered via a wired network.

An obstacle to achieving such a more rational use of the available telephone networks is probably that telephone subscribers generally expect a lower charging rate when calling from their homes or from a stationary unit.

The object of the invention is to provide an advantageous possibility of combining the wishes customers might have for a telephone subscription.

US Patent Specification No. 5,568,153 discloses a system for establishing and administering home zones in a cellular telecommunications network. The system makes it possible to distinguish centrally between a variable size home zone area and a regular mobile use, so that the home area may centrally be dedicated to specific services. However, systems of the above-mentioned type have the drawback that continuous monitoring of the individual mobile telephones is required if unambiguous localization is to be performed. In addition, the system has the drawback that a more exact localization of the home area is very difficult or directly impossible by remote control, as there will always be a local and temporal variation of the signal level of the base station signals, if e.g. a more precise localization of a mobile telephone subscriber should be desired. Thus, according to the prior art a home area will necessarily comprise a relatively large geographical area, unless extremely complicated and expensive measuring equipment, such as GPS equipment, is used.

Summary of the invention

When, as stated in claim 1, the mobile telephone network comprises means for detecting localization signals (LS) transmitted from mobile units to the base stations of the mobile telephone network, at least one telephone number of the base of customer data being addressable directly or indirectly by at least two different localization signals, each localization signal determining at least one item of independent billing record information, advantageous access to the base of customer data is obtained, making it possible for the same telephone number to be associated with several different items of billing record information in dependence on the localization signal which addresses the base of customer data. Thus, it is

possible to allow a localization signal to differentiate the rate, i.e. billing record information, which is associated with a telephone number. This possibility of differentiating the rate for the same telephone number also makes it possible to perform a charging differentiation which is concealed to the user, since both telephone number and additional information and services associated with the telephone number may be fused or differentiated, as desired.

10

A base station is generally taken to mean a transmitter/receiver unit.

15

The special aspect of the invention is thus that the mobile unit, at its own initiative or by remote activation, reveals its position by means of the localization signal. This also involves a very simple monitoring and control of the mobile unit, as continuous and complicated monitoring of the mobile unit is thereby avoided.

20

Billing record information is taken to mean information or data which determine consumption (air time).

25

The independent billing record information may e.g. be two independent parameters in the same billing record or be in their respective billing records.

30

Telephone number is taken to mean the telephone number which is known to and activated by the user.

35

The localization signals transmitted from mobile units to the base stations of the mobile telephone network will be integrated in the current communications protocol between the mobile telephone and the network.

According to the invention, direct addressing is taken to mean that at least the telephone number in the base of customer data which is to be shared by two or more identification codes, is associated directly with the identification codes used.

According to the invention, indirect addressing is taken to mean that addressing of the same telephone number takes place via e.g. another telephone number which is then routed to the same telephone number in the switch centre via an IN platform.

When, as stated in claim 2, the control unit returns to a given item of the independent billing record information when the localization signals change or cease, an advantageous embodiment of the invention is achieved, making it possible, in a simple manner, to avoid uncertainty factors with respect to the localization of the individual mobile units when there is no direct contact to these.

This is an essential advantage over systems which have to register actively and continuously where a mobile unit is present.

When, as stated in claim 3, the localization signals are formed by IMSI or TMSI numbers emitted from mobile units to the transmitter/receiver units, a particularly advantageous embodiment of the invention is obtained, as existing SIM cards with DUAL subscriber data (and thereby two different possible active IMSI or TMSI numbers from the same mobile telephone) may be used for generating the desired localization signals.

When, as stated in claim 4, the two localization signals associated with a telephone number, in addition to dif-

ferent billing record information, address the same or identical customer data, it is possible to fuse two different customer profiles together to one, so that the only difference between the two individually addressable customer profiles is the rate information and recording associated with the profile.

When, as stated in claim 5, the independent billing record information is contained in separate billing records, an advantageous embodiment is achieved, capable of being implemented in existing systems in a simple manner.

When, as stated in claim 6, at least one telephone number is addressed by precisely two localization signals, a localization signal for determining a home zone and a localization signal for determining a non-home zone, each localization signal addressing precisely one item of billing record information, said one item of billing record information comprising consumption information on the basis of a home rate which is to apply when this is addressed, while the other item of billing record information comprises consumption information on the basis of a non-home rate when this is addressed, a particularly simple embodiment of the invention is obtained, as it is thus possible to differentiate a home zone rate and a non-home zone rate in a mobile telephone network in a simple manner.

When, as stated in claim 7, the localization signals are received or derived from data contained in the communications protocol between the mobile units and the base stations of the network, a particularly simple possibility of detecting and using the necessary localization signals is obtained.

35

When, as stated in claim 8, the mobile telephone network comprises means for activating and deactivating at least a first and a second customer profile in the HLR on the basis of information contained in a communications protocol between one or more mobile units and the base stations, each customer profile containing at least one mutually independent billing record, each customer profile directly or indirectly determining the same telephone number or subscriber, a particularly advantageous structure of a mobile telephone network according to the invention is obtained, as the invention thus allows for simple implementation in existing systems which are not optimally adapted to address one telephone number with different billing records.

When calling from a mobile unit associated with two customer profilers, the billing record used will be the one which is associated with the active customer profile.

When calling from an external area to the subscriber, addressing of the non-active telephone number may thus be "switched" via e.g. an IN platform.

When, as stated in claim 9, precisely two different customer profiles in the HLR are activated by means of two different IMSI or TMSI codes received via the communications protocol used between the base stations and the individual mobile telephones, a practical embodiment of the invention is obtained, capable of being used in a simple manner in existing networks which are not optimally adapted to address the same telephone number with different IMSI or TMSI codes.

When, as stated in claim 10, the docking station comprises means for emitting data signals on the connection plug to generate a localization signal emitted from a mo-

bile unit connected to the connection plug so that calls from one or more mobile telephones coupled to the docking station may be charged in accordance with the data signals, an advantageous possibility of providing localization information in the actual communications protocol between the mobile telephone or telephones is obtained, so that the signals emitted by the mobile telephone themselves define the type of call which has been set up. It is thus possible to graduate call rates in accordance with codes emitted from a docking station according to the invention. It is preferred according to the invention that there are two rates, a home (stationary) rate and a mobile rate.

However, it should be stressed that the invention is not limited to these two possible rates, as the invention also allows several different types of rates which are associated with the individual docking stations.

The invention also allows for the provision of differentiated services depending upon whether a mobile telephone is connected to a docking station or not.

Thus, it is a basic idea according to the invention that the mobile telephone itself actively shows whether it is connected to the docking station or not, as it is thus possible directly to identify a type of call from data or specific bits in the communications protocol between the mobile telephone and the base station.

According to the invention it is thus possible to distinguish between at least two states; a state in which the mobile telephone is stationary, and a state in which the mobile telephone is not connected.

According to the invention it is likewise possible to generate these data signals in a suitable manner, without the user getting the opportunity to circumvent the purpose of the system, as the transferred data signals may
5 be encrypted in a suitable manner via the connection plug, have allocated changes thereto as a function of time, be remote-programmed, etc. so that the localization signal in the communications protocol determines suitably and unambiguously how the connection has been provided.

10

Subsequently, it will then be possible centrally to allocate different rates in dependence on the localization signal placed in the communications protocol.

15 It will be understood that it is immaterial in the broadest sense of the invention how the individual mobile telephone is coupled to the docking station, as a coupling may be obtained in a simple manner by a simple wired connection between the docking station and the mobile
20 telephone, without the mobile telephone for that reason being mechanically secured to the docking station or fixed by it.

When, as stated in claim 11, the docking station contains
25 means for detecting that the connection plug is connected to at least one mobile telephone, and the means for emitting data signals are activated when it is detected that the connection plug is connected to or is being connected to at least one mobile telephone, an advantageous embodiment of the invention is obtained, as it is possible to
30 initiate a localization signal when the mobile telephone is plugged in or turned on, just as it is possible to initiate another localization signal when the mobile telephones are taken out of the docking station.

35

Means for detection may e.g. be implemented as a direct electrical detection on the connection plugs. However, it will be understood that the means for detection may be implemented in many other ways, such as e.g. by means of
5 a mechanical-electrical switch which is activated when a mobile telephone is inserted into the apparatus of the invention.

Further, according to the invention it is possible to
10 perform an automatic reset of a mobile telephone when this is connected to the connection plug, following which the means for emitting data signals may transfer a PIN code, concealed to the user, to the mobile telephone. This PIN code, which is automatically required in a
15 power-on after a reset, may thus be addressed or be referred to a localization signal which may subsequently be transferred to the network via the communications protocol. A more specific example of such a localization signal may be an IMSI or a TMSI number belonging to the PIN
20 code.

Correspondingly, on the basis of the means for detection, it will be possible to send a localization signal from the mobile telephone to the telecommunications network to
25 indicate that a call in a given zone or localization has ended.

When, as stated in claim 12, the docking station additionally comprises at least one external electrical connection plug, which is preferably analogue, for coupling
30 of one or more wired networks, a particularly advantageous embodiment of the invention is obtained, as it is thus possible to connect a conventional internal cable telephone network to the docking station, whereby the inserted mobile telephone may e.g. replace an external
35 cable connection.

It will thus be possible for a subscriber to cut off the connection to an existing cable telecommunications network, but subsequently to reuse the existing internal
5 telephone network consisting of a plurality of conventional telephones.

When, as stated in claim 13, the docking station additionally comprises means for detecting number selection
10 tones, preferably DTMF call signals on the external electrical connection plug, and means connected thereto for generating corresponding mobile call signals, preferably GSM codes, for transfer to a mobile unit via at least one of the connection plugs, and the apparatus additionally
15 comprises means for generating ringing tones on the external electrical connection plug, an advantageous embodiment of the invention is obtained, since a user thus has the possibility of coupling existing analogue equipment to the docking station.

20 When, as stated in claim 14, the docking station additionally comprises a charging device which is electrically connected to the connection plugs, an advantageous embodiment of the invention is obtained.

25 When, as stated in claim 15, the means for generating data signals are remote-programmable, it is possible to prevent hackers from getting access to the localization signals, as these may be changed centrally by the network
30 operator at regular intervals.

When, as stated in claim 16, the docking station comprises means for emitting data signals to a mobile telephone inserted into at least one of the connection plugs,
35 so that the mobile telephone, when inserted or with power on, inputs a PIN code, concealed to the user, for auto-

matic generation of a home localization signal in the form of an IMSI or a TMSI code, contained in the mobile telephone, in the communications protocol of the mobile telephone, a practical and advantageous embodiment of the invention is obtained.

An IMSI number may e.g. be contained in the mobile telephone on an SIM card.

When, as stated in claim 17, the docking station comprises means for emitting data signals to a mobile telephone inserted into at least one of the connection plugs, so that the mobile telephone, when making a call from it, generates a pre-telephone number which is concealed to the user and which constitutes a home zone localization signal in the form of a code sequence contained in the data signals, an advantageous embodiment of the invention is obtained, providing a call indication in a simple manner that the mobile telephone inserted in the docking station is in the home zone.

The present embodiment is thus call-based in the sense that a home zone is defined for each call.

Drawing

The invention will be explained more fully below with reference to the drawing, in which

fig. 1 shows an overall functional illustration of the network related part of the invention,

fig. 2 shows a basic sketch of a network and a docking station according to the invention,

fig. 3 shows a customer profile in an HLR, and

fig. 4 shows two corresponding customer profiles according to the invention.

5 Example

Fig. 1 shows a functional illustration of the network related part of the invention.

10 A plurality of transmitter/receiver stations, also called base stations 10, are connected to a plurality of switch centres 11, which are in turn connected to one or more wired networks 12.

15 The function of the base stations 10 is to perform the direct communication between mobile subscribers in the form of mobile telephones 1.

As mentioned above, the base stations 10 are moreover
20 connected to the switch centre 11, whose overall purpose is to perform controlled routing of calls in the system between the individual subscribers in the wireless network and optionally further on to and from the wired network 12.

25 The switch centre 11 also comprises control data 13 which comprises the means necessary for the mentioned routing to be performed under sufficient control. According to the invention, it is immaterial in principle how the
30 switch centre 11 and control data 13 are actually constructed and localized, the decisive point being that the control actually takes place on the basis of given data.

Thus, it is not decisive according to the invention where
35 and how the shown routing is carried out, as the basic

idea of the invention can be implemented in most conceivable applications.

As shown in fig. 1, the above-mentioned control data 13
5 comprise a large number of customer profiles according to the invention, of which 13', 13" and 13''' are shown.

All the shown customer profiles are unambiguously addressable or addressable via a plurality of unique ID
10 codes 14, 15, 16 and 17. According to the invention, it is not decisive how many ID codes are used for addressing the same customer profile, but, as mentioned above, there are four, viz. 14-17, in the embodiment shown.

15 The shown ID codes 14-17 are each unambiguously associated with one billing record 14', 15', 16' and 17'. The individual billing records may contain direct or indirect information on the rate which is associated with the individual ID code, and point to or contain registers which
20 record the consumption of the individual user.

Whether there may be cross references between some of these billing records 14'-17' or whether individual billing records are shared by several ID codes is not decisive
25 according to the invention, but it is of vital importance that at least two ID codes address or are associated with their respective independent billing records, thereby allowing rate differentiation and associated consumption recording to be performed.

30

Whether the shown linkage is direct or via supplementary routines or networks is not decisive according to the invention.

35 The shown billing records 14'-17' are moreover associated with the same telephone number 18.

In the preferred embodiment, each telephone number 18 is associated with one specific set of services 19 so that the subscriber neither sees or nor can tell which services are offered to the same telephone number.

However, it should be stressed according to the invention that in some connections benefits may be derived from a service differentiation in dependence on ID codes.

10

Fig. 2 shows a basic sketch of a network and a docking station in explanation of the invention.

In the example shown, the invention will be described with known GSM terminology to the greatest extent possible, and the shown network solution may e.g. be implemented as an ordinary GSM network with NOKIAD's DX 200 network components: MSC, HLR and VLR.

20 The shown network comprises a plurality of base stations 20 which are connected to one or more so-called MSCs 21 (Mobile Subscriber Centre)

Each MSC 22 is moreover connected to a wired network PSTN 23.

The function of each MSC 21 is to route calls in the telecommunications network between the individual base stations 20 and/or the wired network PSTN 23 in a known manner.

The MSC 21 is additionally connected to an IN platform 29 (Intelligent Network).

35 Each MSC 21 is connected to a control data base in the form of an HLR 22 (Home Location Register).

The function of each HLR 22 is to record and supply the necessary subscriber data for use by the MSC 21, so that the MSC 21 can switch to and from subscribers. Subscriber
5 data may e.g. be telephone number, services, billing information and billing recording.

Fig. 2 also shows a docking station 27 according to the invention, said station being connected to a plurality of
10 receptacles 26 in which a plurality of mobile telephones 24 may be seated.

The receptacles 26 are connected to an external antenna
15 25.

The docking station 27 is moreover provided with a plurality of gates for wired network telephones 28, so that these 28 can make and receive calls on the mobile network via the docking station 27 and the inserted mobile telephone or telephones.
20

The overall function according to the invention is thus that the docking station 27 generates a code, concealed to the user, in the communications protocol between the
25 inserted mobile telephone or telephones 24 and the network if the mobile telephone 24 is inserted in the docking station 27. This code represents a localization signal, said signal in the communications protocol being an unambiguous description of whether the mobile telephone
30 is inserted in the docking station 27 or not.

The localization signal is communicated via the antenna 26 to the base station 20 or the base stations and from there to the network.

35

It is noted that according to the invention it is the individual subscribers themselves who actively reveal their identities to the network, no matter whether this localization signal is activated independently of the network
5 or upon an inquiry from the network.

It will subsequently be possible to detect the localization signal in the network according to the invention and to determine from this signal whether the mobile telephone is inserted in a given docking station or not, following which this information may form the basis for a
10 differentiated rate fixing and rate recording.

According to the invention, the preferred rate differentiation is divided into two, viz. a home zone and a non-home zone, and the user of the mobile telephone inserted in the docking station is charged a reduced rate when the network registers that the mobile telephone is in the home zone.
15

20 An additional advantage of the invention is that the user has the possibility of using wired network telephones.

An example of how the docking station can operate more specifically according to the invention will be described
25 briefly below. The mobile telephone 24 is reset by insertion into or power-on in the docking station 27, and then the docking station 27 transfers a given code, e.g. corresponding to a PIN code from a dual subscriber subscription, whereby the mobile telephone, in the communications
30 protocol with the network, allows the localization signal to be an IMSI or a TMSI number different from the IMSI or TMSI number which is used in ordinary communication with the network when the mobile telephone is not inserted in
35 the docking station 27.

For this purpose the mobile telephone 24 may be provided with an SIM card of the DUAL SUBSCRIPTION MECHANISM type which contains 2 IMSI or TMSI numbers. The docking station 27 is thus capable of communicating with the mobile telephone 24 through the data bus which is available on the plug where external equipment is connected to the mobile telephone 24. This communication is to be used for providing the mobile telephone 24 with codes so as to enable the operator to determine from the network side whether the mobile telephone 24 is mobile or stationary.

When the mobile telephone 24 is placed in the receptacle 26, the docking station 27 resets the mobile telephone 24 in a manner concealed to the user and provides it with a PIN code or other code. This PIN code will then activate an IMSI or a TMSI number which is concealed to the customer and which is different from the IMSI or TMSI number that normally refers to his customer profile in the above-mentioned customer profile in the HLR 22 (telephone number, switching and various services).

The mobile telephone 24 will then couple itself to the network and update itself in the data base HLR of the operator with the concealed IMSI or TMSI number which tells that the customer is stationary. As a result of various measures in MSC and HLR, which will be discussed more fully with reference to fig. 3, the customer always presents himself with the same profile, e.g. telephone number, no matter whether he is stationary or mobile. However, the customer may be offered a reduced rate and access to special services when he has the status of being stationary.

Another example of the generation of a localization signal may be that in connection with a call to and from the mobile telephone 24 when this is inserted in the docking

station 27, a plurality of digits or e.g. # concealed to the user is generated so that a code or a flag contained in the following communications protocol between the mobile telephone and the telecommunications network constitutes an indication or more particularly a localization signal that may be detected unambiguously on the network side, so that the stationary state of the mobile telephone in the given docking station is recorded centrally.

10

It should moreover be noted that it may be checked centrally in a relatively simple manner whether the docking station used is actually stationary, or whether the user tries to circumvent the purpose of the system.

15

Fig. 3 shows an illustration of the contents of the above-mentioned HLR 22.

The HLR 22 comprises a plurality of customer profiles 30, 30', 30'', 30''', etc., of which the customer profile 30 will subsequently be described in slightly greater detail.

Basically, the customer profile 30 comprises a link to a billing record (not shown) which contains information on the consumption which applies to the customer profile 30 concerned.

A portion of the customer profile contains an ID code in the form of an IMSI or a TMSI number 31, which unambiguously addresses and determines the customer profile 30 concerned.

Further, the customer profile 30 contains information on supplementary services 32 associated with the customer profile 30 concerned.

A portion of the customer profile 30 also contains a telephone number 33, or more particularly a mobile station ISDN number which is likewise unique to each customer profile in the present application.

The HLR 32 additionally contains information which determines so-called call restriction services 34, call forwarding services 35 and call completion services.

This applies correspondingly to the shown customer profile 30', with the difference that all the corresponding numbers are marked by a mark " ' ".

According to an embodiment of the invention, the HLR comprises precisely two customer profiles 30, 30' which are linked together, in the sense that both customer profiles are associated with the same subscriber, the services 32, 34, 35 and 36 being basically the same for both customer profiles, while the IMSI or TMSI number 31, the billing record (not shown) associated with the customer profile and the telephone number 33 are unique to each customer profile.

For one thing, this means that it makes no difference to the user which services are associated with each customer profile. This circumstance is supported by a routine introduced into the network, said routine ensuring that all services, including the currently user-selected ones, are automatically copied from one customer profile 30 to the other 30'.

Also an activity flag 37, 37' is associated with the customer profiles 30, 30', said activity flag indicating whether an associated mobile telephone has been turned on/off in accordance with the rules.

Finally, it should be mentioned in this context that the customer profiles are associated with an IN flag 38, 38' which indicates whether the current, addressed customer profile has associated therewith a connection to a so-called IN platform 29 (Intelligent Network). This flag, if set, means that routing takes place on the associated MSC 21 under control of the IN platform 29. The function of the IN platform 29 may thus be to "filter" or replace the telephone number from which routing was otherwise to take place in the customer profile.

Thus, by setting this IN flag 28' in one customer profile, it will be possible, via the IN platform 29, to give the customer profile 30' the same telephone number as is contained in 30.

An advantageous manner of establishing the current customer profiles may be achieved by using a communications protocol M8 that may be used for direct data exchange between the IN platform and the current customer profiles.

This means that two customer profiles 30 and 30' may be "fused" together to define the same telephone number in connection with incoming and outgoing calls, which conversely means that it is possible to attach two different billing records, one associated with the customer profile 30 and one associated with 30', to the same telephone number, viz. the telephone number which is contained and determined in the customer profile 30.

Thus by making a check on at least one of the activity flags 37, it is possible to determine via the IN platform 29 whether the customer profile 30 or the customer profile 30' is active, whereby the associated billing record may be activated.

It should thus be noted that measures according to the present embodiment serve to "fuse" two customer profiles so that services and telephone numbers (via the IN platform) will be the same.

A slightly more overall explanation of the example appears from fig. 4, in which two customer profiles 40 and 40' respectively comprise a telephone number 43 and 43', an IMSI code 41, 41', a link to a billing record 45 and 45' as well as a group of services 44.

As will appear from fig. 4, a change in services, no matter whether these are changed by the customer himself or by the operator, will automatically be copied into the corresponding customer profile, just as a call to the customer profile 40' will automatically cause this number to be routed in the MSC in practice via the IN platform 29 coupled to the HLR 22, corresponding to the telephone number 43 which is stated in the customer profile 40.

Since each customer profile 40 and 40' is individually addressable via the IMSI code 41, 41' unique to the customer profile, the IMSI code will thus serve as a localization signal in practice which clearly determines which billing record 45 or 45' is to be used.

PATENT CLAIMS:

1. A central control unit or an assembly of central control units for a mobile telephone network having a plurality of base stations, at least one control unit comprising a base of customer data, said customer data comprising billing records with billing record information, telephone numbers, various services and further data, characterized in that the mobile telephone network comprises means for detecting localization signals transmitted from mobile units (1; 24) to the base stations (10; 20) of the mobile telephone network, at least one telephone number (33; 43) in the base of customer data being addressable directly or indirectly by at least two different localization signals, each localization signal determining at least one item of independent billing record information.
2. A central control unit according to claim 1, characterized in that the control unit returns to a given item of the independent billing record information when the localization signals change or cease.
3. A central control unit according to claim 1 or 2, characterized in that the localization signals are formed by IMSI or TMSI number (31; 41; 41') emitted from mobile units to the base stations.
4. A central control unit according to claims 1-3, characterized in that two localization signals associated with a telephone number (33; 43), in addition to different billing record information, address the same or identical customer data.
5. A central control unit according to claims 1-4,

c h a r a c t e r i z e d in that the independent billing record information is contained in separate billing records (45, 45').

5 6. A central control unit according to claims 1-5,
c h a r a c t e r i z e d in that at least one telephone
number may be addressed by precisely two localization
signals, a localization signal for determining a home
zone and a localization signal for determining a non-home
10 zone, each localization signal addressing precisely one
item of billing record information, said one item of
billing record information comprising consumption information on the basis of a home rate which is to apply when
this is addressed, while the other item of billing record
15 information comprises consumption information on the basis of a non-home rate when this is addressed.

7. A central control unit according to claims 1-6,
c h a r a c t e r i z e d in that the localization signals
20 are received or derived from data contained in the
communications protocol between the mobile units and the
base stations of the network.

8. A mobile telephone network comprising a plurality of
25 transmitter and receiver units for transmitting and receiving radio signals to and from mobile units, one or more MSCs (Mobile Switching Centre) connected to the base stations, one (or more) PSTN (Public Service Telephone Network) distribution networks connected to the MSCs, and
30 an HLR (Home Location Register) connected to the MSCs, said HLR comprising a data base of customer profiles which, as a minimum, comprises at least one unique ID code associated with the customer profile, a telephone number or a pointer to it, a billing record associated
35 with the customer profile and other lists of services,

c h a r a c t e r i z e d in that the mobile telephone network comprises means for activating and deactivating at least a first and a second customer profile (40, 40') in the HLR on the basis of information contained in a communications protocol between one or more mobile units (1) and the base stations (10), each customer profile containing at least one mutually independent billing record (45, 45'), each customer profile determining the same telephone number (43) or subscriber directly or indirectly.

9. A mobile telephone network according to claim 8, c h a r a c t e r i z e d in that precisely two customer profiles in the HLR are activated by means of two different IMSI or TMSI codes (41, 41') received via the communications protocol used between mobile subscribers (1) and the base stations (10).

10. A docking station comprising at least one connection plug for transferring signals to and from at least one mobile telephone, c h a r a c t e r i z e d in that the docking station (27) comprises means for emitting data signals on the connection plug or plugs to generate a localization signal emitted from a mobile unit connected to the connection plug or plugs, so that calls from one or more mobile telephones (1; 24) connected to the docking station (27) may be charged in accordance with the data signals.

11. A docking station according to claim 10, c h a r a c t e r i z e d in that the docking station contains means for detecting that the connection plug is connected to at least one mobile telephone, and that the means for emitting data signals are activated when it is detected that the connection plug is connected or is being connected to at least one mobile telephone (24).

12. A docking station according to claim 10 or 11,
c h a r a c t e r i z e d in that the docking station
additionally comprises at least one external electrical
5 connection plug, which is preferably analogue, for the
coupling of one more or wired networks.

13. A docking station according to claims 10-12,
c h a r a c t e r i z e d in that the docking station
10 additionally comprises means for detecting number selec-
tion tones, preferably DTMF call signals, on the external
electrical connection plug, and means connected thereto
for generating corresponding mobile call signals, pref-
erably GSM codes, for transfer to a mobile telephone via
15 at least one of the connection plugs, and that the appa-
ratus additionally comprises means for generating ringing
tones on the external electrical connection plug.

14. A docking station according to claims 10-13,
20 c h a r a c t e r i z e d in that the docking station
additionally comprises a charging device which is elec-
trically connected to the connection plug.

15. A docking station according to claims 10-14,
25 c h a r a c t e r i z e d in that the means for generat-
ing data signals may be remote-programmed.

16. A docking station according to claims 10-15,
c h a r a c t e r i z e d in that the docking station
30 comprises means for emitting data signals to a mobile
telephone inserted into at least one of the connection
plugs, so that the mobile telephone, when inserted or
with power on, inputs a PIN code, concealed to the user,
for automatic generation of a home zone localization sig-
35 nal in the form of an IMSI or a TMSI code, contained in

the mobile telephone, in the communications protocol of the mobile telephone.

17. A docking station according to claims 10-16,
5 c h a r a c t e r i z e d in that the docking station comprises means for emitting data signals to a mobile telephone inserted into at least one of the connection plugs, so that, when calling, the mobile telephone gener-
ates a pre-telephone number which is concealed to the
10 user and which constitutes a localization signal in the form of a code sequence contained in the data signals.

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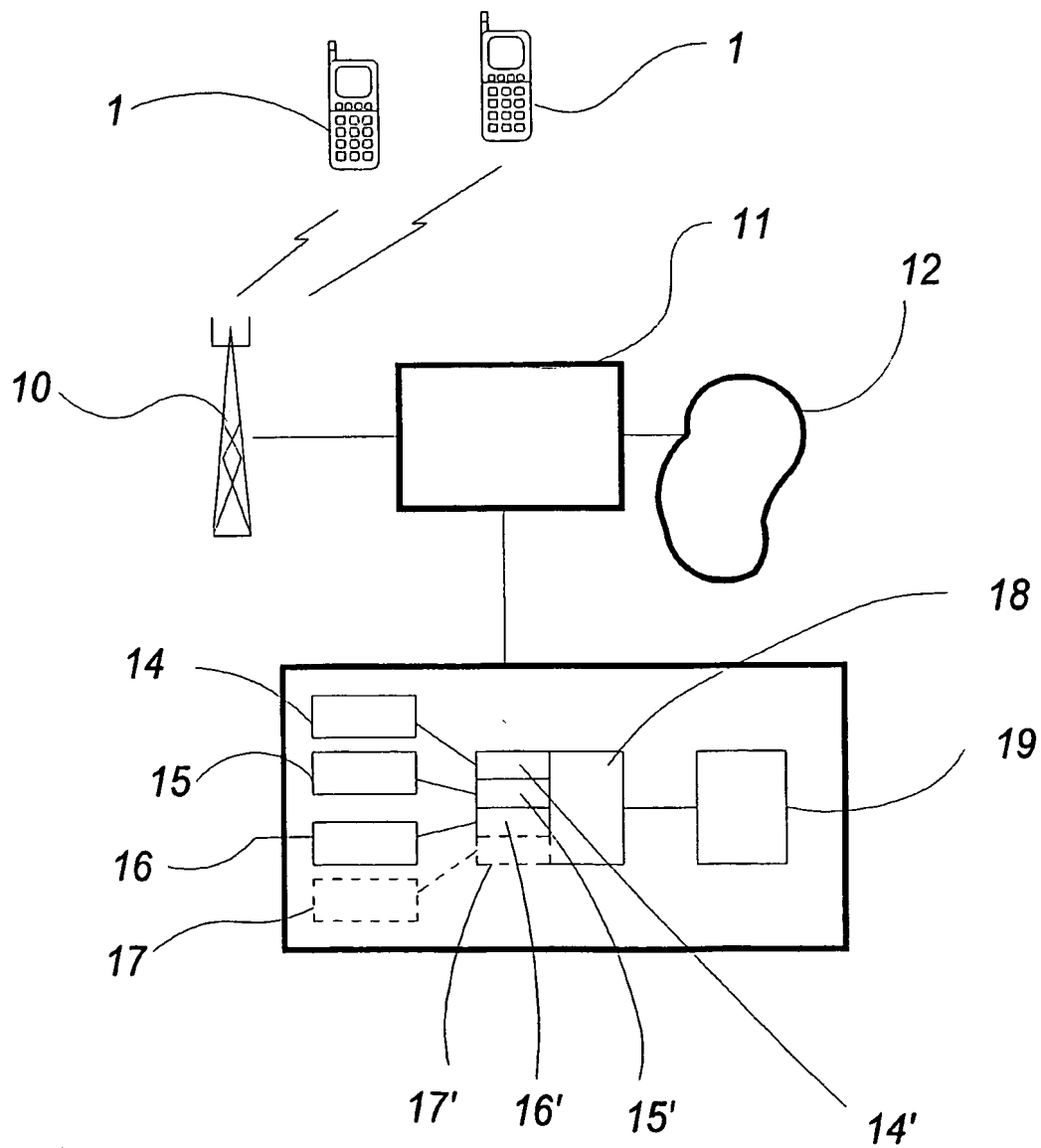


Fig. 1

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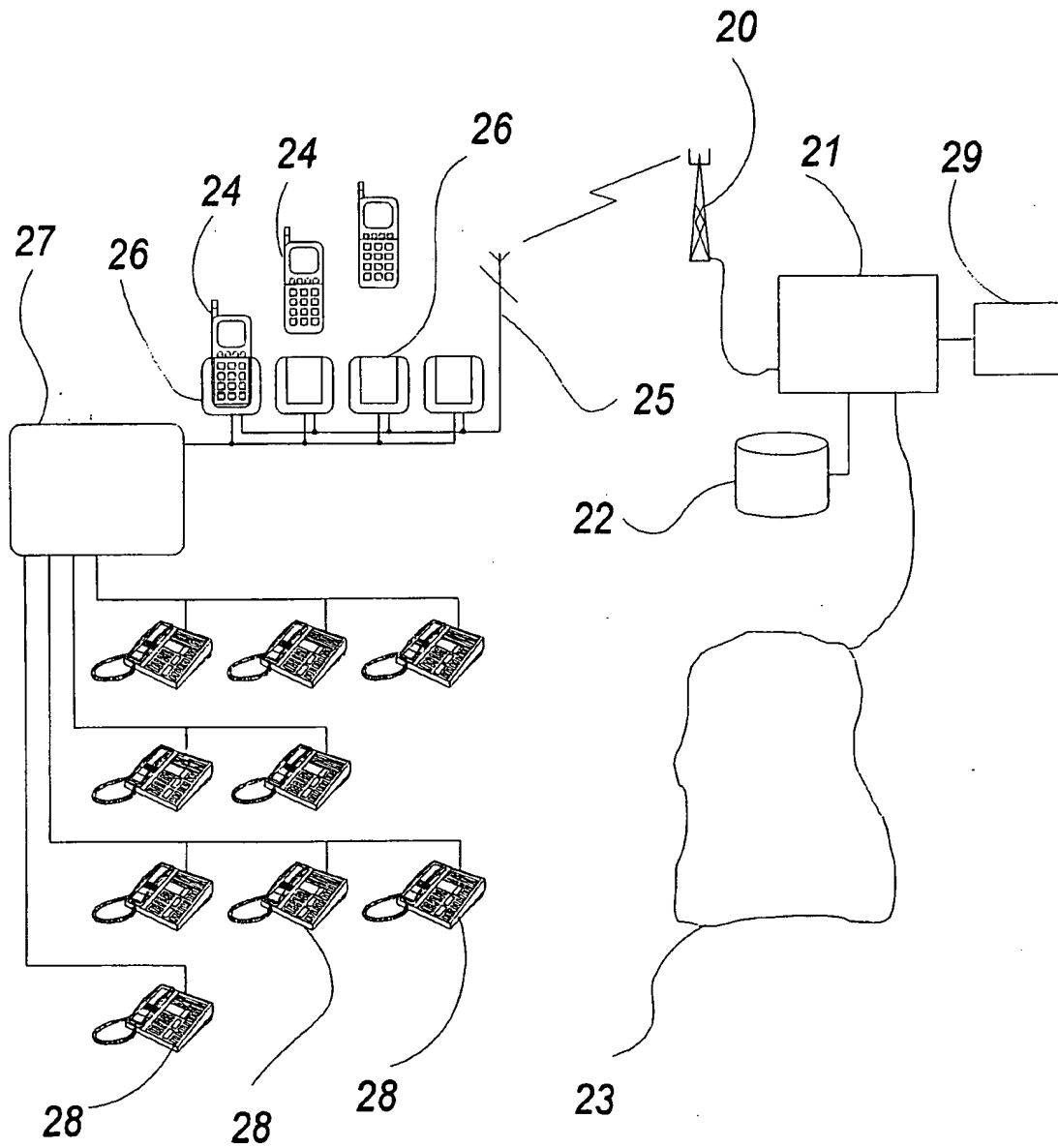


Fig.2

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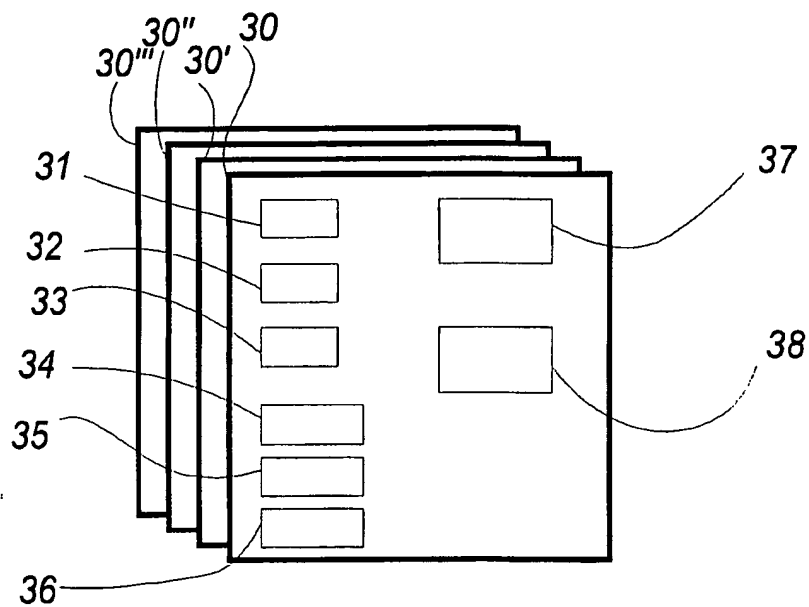


Fig. 3

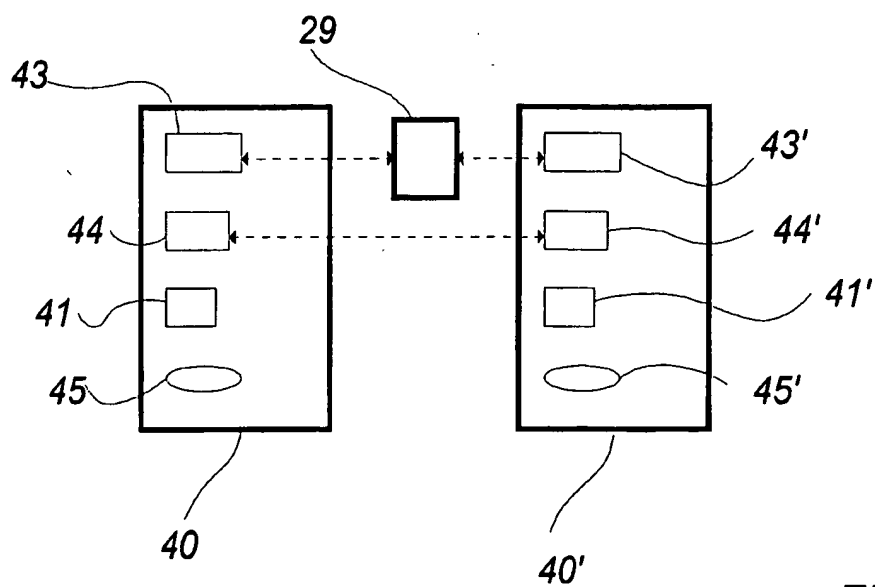


Fig. 4